

2012 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2012 - 5/31/2013

HERD: EL211 - MEDICINE LODGE

HUNT AREAS: 41-42, 45

PREPARED BY: TOM EASTERLY

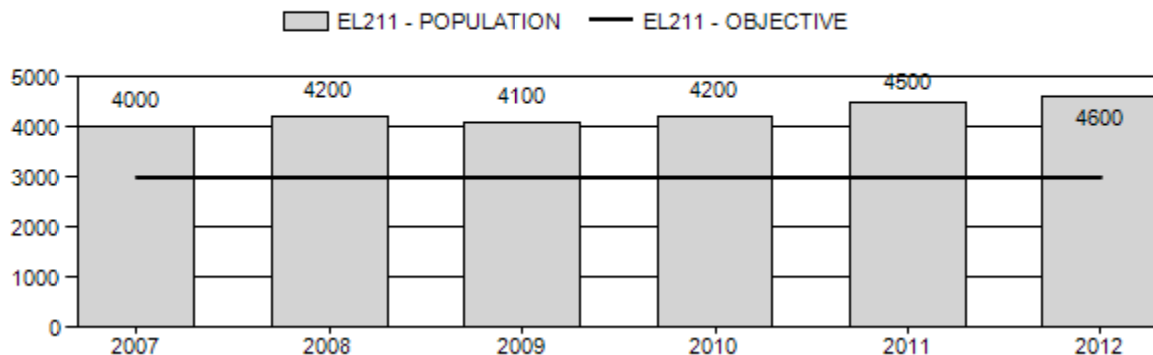
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	4,200	4,600	4,600
Harvest:	644	615	790
Hunters:	1,575	1,680	1,950
Hunter Success:	41%	37%	41 %
Active Licenses:	1,587	1,711	2,075
Active License Percent:	41%	36%	38 %
Recreation Days:	12,052	14,153	15,000
Days Per Animal:	18.7	23.0	19.0
Males per 100 Females	24	27	
Juveniles per 100 Females	43	51	

Population Objective: 3,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: 53%
 Number of years population has been + or - objective in recent trend: 13
 Model Date: 2/26/2013

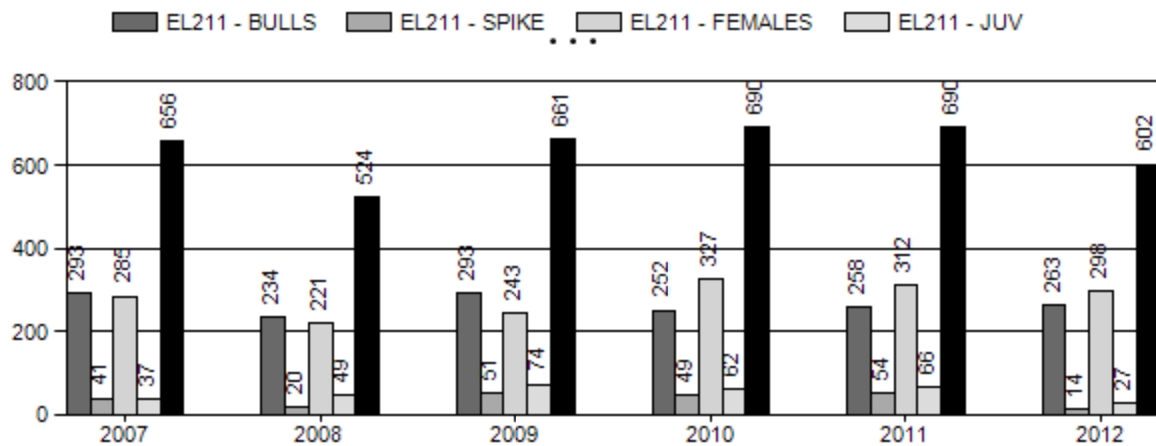
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	13.1%	14.5%
Males \geq 1 year old:	26.1%	30.3%
Juveniles (< 1 year old):	2.3%	6.5%
Total:	11.6%	14%
Proposed change in post-season population:	+3.2%	-1%

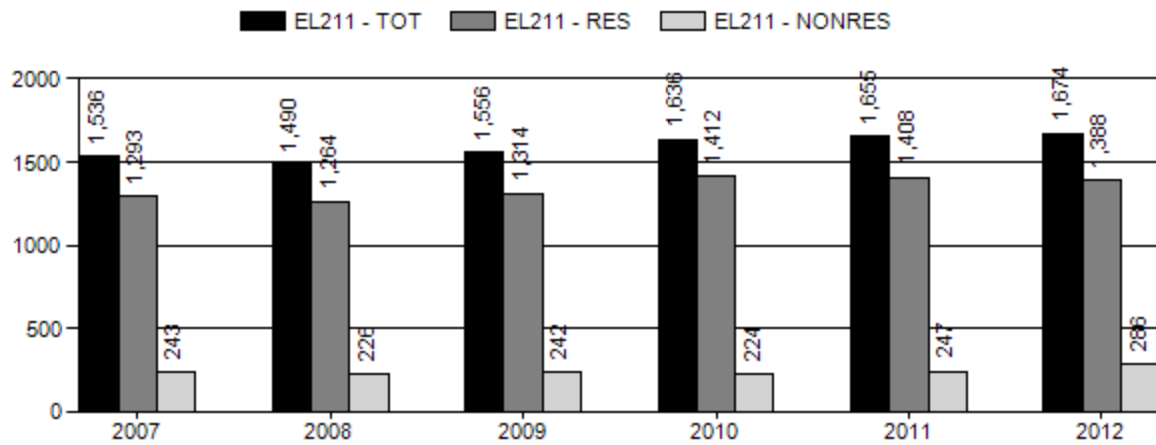
Population Size - Postseason



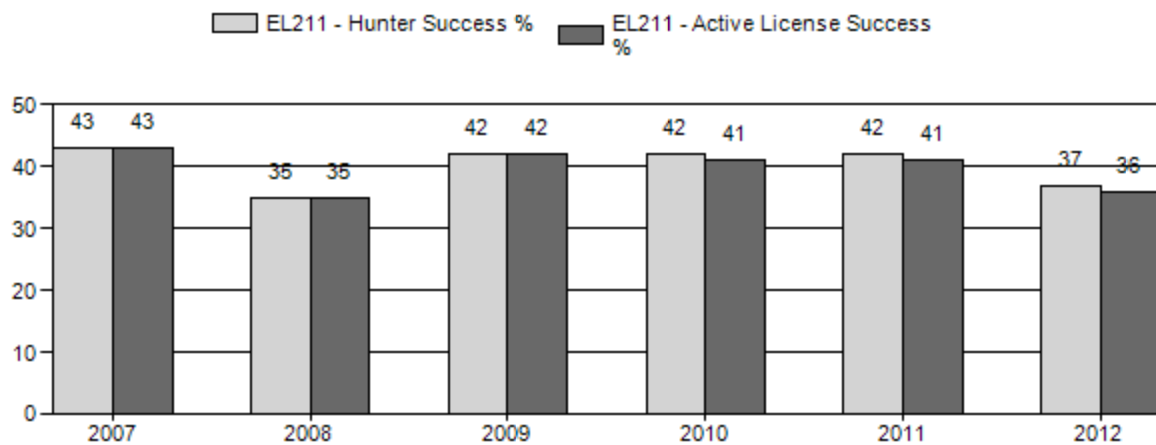
Harvest



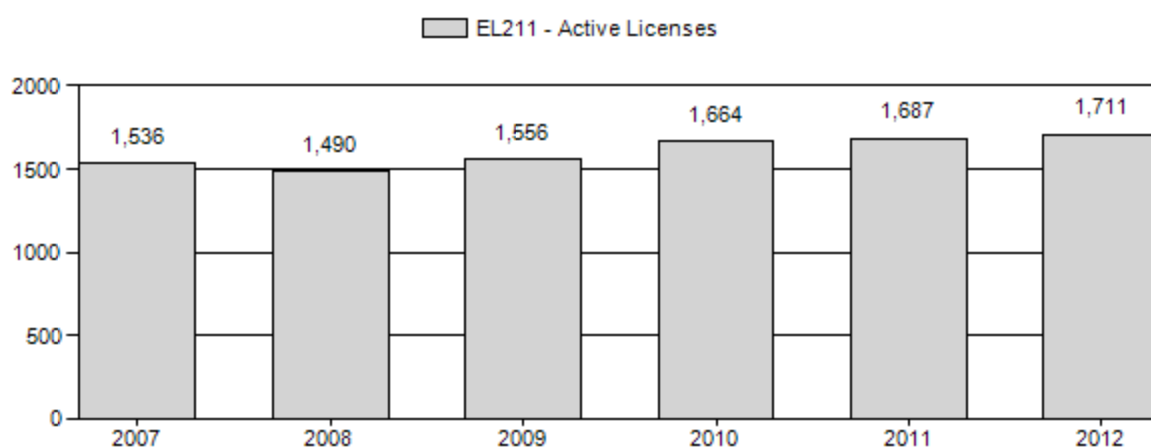
Number of Hunters



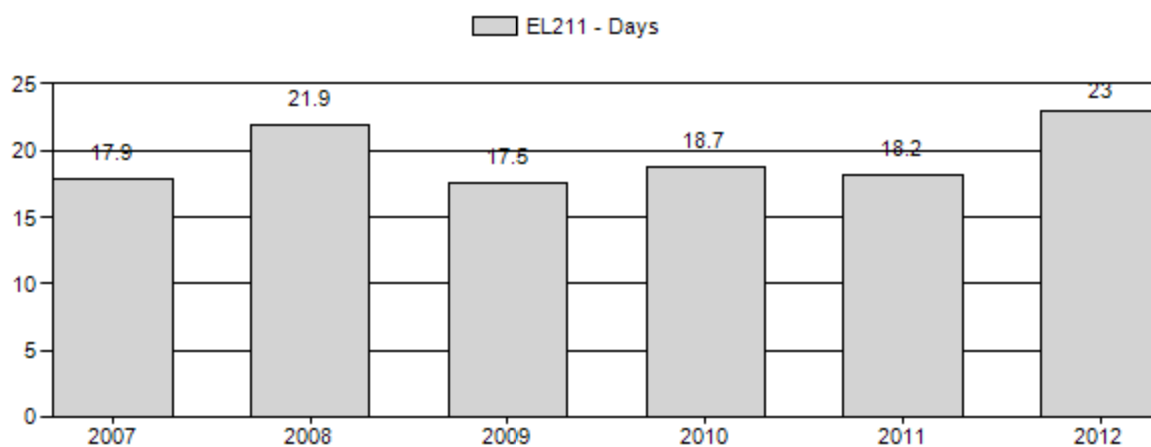
Harvest Success



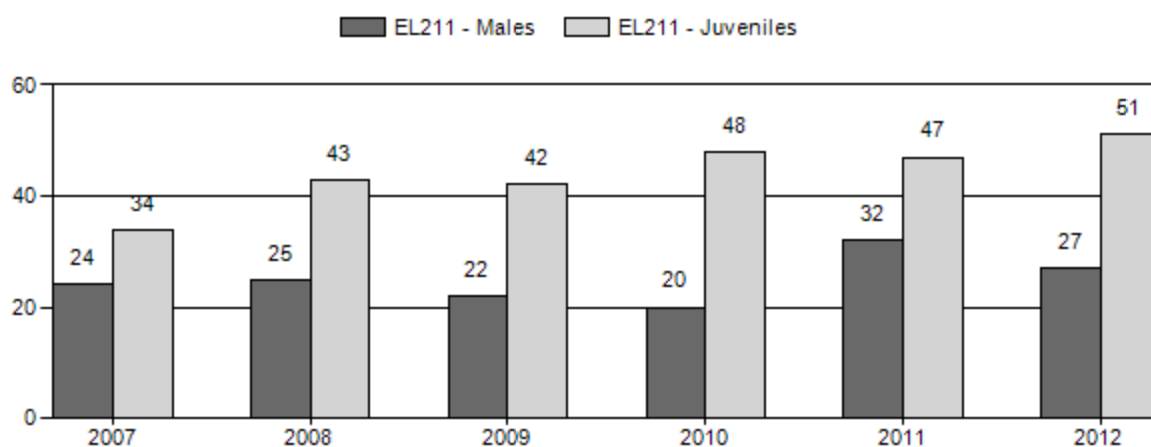
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2007 - 2012 Postseason Classification Summary
for Elk Herd EL211 - MEDICINE LODGE

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Contr Int	100 Fem	Contr Int	100 Adult
2007	4,000	133	145	278	15%	1,150	63%	390	21%	1,818	405	12	13	24	± 2	34	±2	27
2008	4,200	151	170	321	15%	1,303	60%	565	26%	2,189	570	12	13	25	± 1	43	±2	35
2009	4,100	212	207	419	13%	1,914	61%	798	25%	3,131	543	11	11	22	± 1	42	±1	34
2010	4,200	155	134	289	12%	1,430	60%	684	28%	2,403	506	11	9	20	± 1	48	±2	40
2011	4,500	245	215	460	18%	1,453	56%	686	26%	2,599	582	17	15	32	± 1	47	±2	36
2012	4,600	164	177	341	15%	1,251	56%	634	28%	2,226	753	13	14	27	± 2	51	±2	40

2012 Postseason Classification by Hunt Area
for Elk Herd EL211 - MEDICINE LODGE - Hunt Area ALL

Area	Males				Females		Juveniles		Total	Cls Obj	Males/100			Young/100	
	Ylg	Adult	Total	%	#	%	#	%			Ylg	Adult	Males	Female	Adult
41	71	90	161	15%	646	60%	269	25%	1,076		11	14	25	42	33
42	51	43	94	18%	269	52%	151	29%	514		19	16	35	56	42
45	42	44	86	14%	336	53%	214	34%	636		12	13	26	64	51
Total	164	177	341	15%	1251	56%	634	28%	2,226	753	13%	14%	27%	51	40

2012 Harvest Data
for Elk Herd EL211 – MEDICINE LODGE

Area	Type	Active Lic/Htrs	Bull	Spike	Cow	Calf	Total	Success	Days/ Harvest	Days	Licenses Sold
41 NORTH MEDICINE LODGE											
	Type 1	302	85	5	5	0	95	31.5%	21.1	2002	377
	Type 4	309	0	0	84	3	87	28.2%	29.8	2590	400
	Type 6	64	0	0	18	5	23	35.9%	23.9	549	75
	Type 9	116	22	5	0	0	27	23.3%	47	1270	127
	Pooled Total	759 (791)*	107	10	107	8	232	30.6% (29.3%)*	27.6	6411	
	Pooled Resident	622	66	7	97	5	175	28.1%	31.6	5522	
	Pooled Nonresident	137	41	3	10	3	57	41.6%	15.6	889	
42 MEDICINE LODGE											
	Type 1	108	9	4	5	0	18	16.7%	34.6	622	0
	Type 4	138	0	0	31	6	37	26.8%	23.3	863	0
	Type 6	16	0	0	9	0	9	56.2%	7.8	70	0
	Type 9	7	0	0	0	0	0	0.0%	0	25	0
	Pooled Total	260 (269)*	9	4	45	6	64	24.6% (23.8%)*	24.7	1580	
	Pooled Resident	216	9	4	38	6	57	26.4%	23.9	1364	
	Pooled Nonresident	44	0	0	7	0	7	15.9%	30.9	216	
45 PAINTROCK CREEK											
	Type 1	330	131	0	28	0	159	48.2%	13.8	2197	352
	Type 4	165	0	0	43	10	53	32.1%	25.9	1374	175
	Type 5	161	0	0	70	3	73	45.3%	14.9	1088	175
	Type 9	138	16	0	5	0	21	15.2%	72.4	1520	153
	Pooled Total	794 (794)*	147	0	146	13	306	38.5% (38.5%)*	20.2	6179	
	Pooled Resident	663	97	0	127	13	237	35.7%	22	5204	
	Pooled Nonresident	131	50	0	19	0	69	52.7%	14.1	975	
2012 Hunt Area Total											
		1813 (1854)*	263	14	298	27	602	33.2% (32.5%)*	23.5	14170	1834
2012 Herd Total											
		1674 (1703)*	263	14	298	27	602	36.0% (35.3%)*	23.5	14170	1834
* Active Licenses											

2013 HUNTING SEASONS
Medicine Lodge Elk Herd Unit (EL211)

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
41	1	Oct. 15	Nov. 4	375	Limited quota licenses; any elk
	4	Oct. 15	Nov. 4	400	Limited quota licenses; antlerless elk
		Nov 23	Dec. 1		Unused Area 41 Type 4 licenses
		Dec. 14	Dec 22		Unused Area 41 Type 4 licenses
	6	Sep. 1	Oct. 14	150	Limited quota licenses; cow or calf valid off national forest
		Oct 15	Nov. 4		Unused Area 41 Type 6 licenses valid in the entire area
		Nov. 23	Dec. 1		Unused Area 41 Type 6 licenses
	9	Dec. 14	Dec. 22		Unused Area 41 Type 6 licenses
		Sep. 1	Sep. 30	125	Limited quota licenses; any elk, archery only
45	1	Oct. 15	Nov. 4	350	Limited quota licenses; any elk
	4	Oct. 15	Nov. 15	200	Limited quota licenses; antlerless elk
		Nov. 16	Nov. 30		Unused Area 45 Type 4 licenses valid off national forest
	5	Sep. 1	Oct. 9	200	Limited quota licenses; antlerless elk valid off national forest
		Oct. 10	Nov 15 4		Unused Area 45 Type 5 licenses valid in the entire area
	9	Sep. 1	Sep. 30	150	Limited quota licenses; any elk, archery only
		Archery:			
41	6	Sep. 15	Sep. 30		Valid in the entire area
41, 45		Sep. 15	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
41	6	+75
45	4	+25
	5	+25
Total	4	+25
	5	+25
	6	+75

Management Evaluation

Current Management Objective: 3,000

2012 Postseason Population Estimate: ~4,600

2013 Proposed Postseason Population Estimate: ~4,600

Herd Unit Issues. Following a marking study in the early 1980s, this herd unit was formed by combining two pre-existing herds (Trapper-Medicine Lodge and Paintrock-Ten Sleep), due to interchange of elk. The herd unit continues to be managed with hunting licenses valid for either the northern hunt area (41) or the southern area (45). The current population objective (3,000 elk) was first adopted in 1983. Formal reviews (internal) of the population objective and management goals were conducted in 1997, 2001 and 2007.

Human activities in this herd unit are rarely severe enough to affect elk survival and productivity. Bentonite mining and oil/gas development occur on the west side of the herd unit where habitats are not suitable for elk. Farming occurs near elk habitats and elk often forage on irrigated crops or pastures. Antlerless elk hunting seasons are often driven by landowner complaints. Conversely, some landowners lease hunting to outfitters and allow no public access to even hunt cow elk. During the past 10 years, lack of access to large groups of elk on private land has allowed this population to increase.

Weather. Climatic factors affect this elk herd more than human-caused factors. Survival and productivity are affected by drought and severe winters, as evident in low calf:cow ratios. Drought impacts elk through reduced production of herbaceous vegetation. Despite drought conditions across most of the state, the Bighorn Mountains received adequate moisture in spring and early summer 2012. There are no sampling transects in this area to monitor vegetative production or utilization. There has not been a severe winter in the Bighorn Basin since the early 1980s and past JCRs for the herd unit suggest some winter kill occurred.

Habitat. The herd unit contains approximately 1,500 mi². High-elevation summer ranges are mainly sagebrush-grassland and alpine meadows interspersed with aspen, lodgepole pine, and spruce/fir timber stands. The majority of the summer range is public land managed by the U.S. Forest Service. Steep foothills and drainages that serve as winter and spring ranges are covered with juniper, sagebrush, and grasslands. Winter ranges are mainly public land managed by the Bureau of Land Management, interspersed with private land.

Field Data. During the driest years of the most recent extended drought (2001-04), calf numbers averaged 34 calves:100 cows. In years with “normal” precipitation (2005-12), 44 calves:100 cows have been observed on average. For 2012, calf:cow ratios were 51:100. High calf:cow ratios suggest this population can quickly increase if harvest does not keep up with production.

Bull:cow ratios can vary depending if bull groups are located during classification surveys. For example, in 2010, 20 bulls:100 cows were observed and in 2011, 32:100 were observed. Annual bull ratios should not be used to annually adjust hunting licenses; rather short-term (3-5 year) averages probably give a better indication to trends in bull numbers. Sample sizes for classification surveys are calculated based on calf:cow ratios and not bull:cow ratios. Survey effort (flight time) should remain consistent (~4 helicopter hours) so that bull groups can be located and more accurately reflect actual conditions.

Management of hunting seasons allowed bull:cow ratios to increase. These hunt areas changed from general license hunting to limited quota in 1979 and 1983, for the northern and southern hunt areas, respectively. From 1975 to 1984, an average of 9 bulls:100 cows was observed (mostly yearling bulls), and then bull ratios began to increase under limited quota hunting (average=13:100 between 1985-1997). When Type 1 licenses were changed from “antlered elk” to “any elk” (1998), yearling and raghorn bulls were passed up by some hunters and allowed to

survive longer, subsequently increasing bull:cow ratios again. Bull ratio have increased (except a decline during drought years), averaging 20:100 (1998-2012). Branched antlered bulls have been observed in similar numbers to yearling bulls. Bull ratios may also be increasing since personnel have been in the area for many years and learned where to find wintering bulls during classification surveys.

Harvest Data. Following changes to Type 1 licenses, harvest statistics indicated harvesting an elk became easier. Effects of limited quota hunting began to be noticed in hunter success (increased) and days per harvested animal (decreased) by the late 1980s-early 1990s. Since the change to any elk (Type 1 licenses), those statistics have shown less variability (range between 35-45% hunter success and 15-23 days/harvest). The number of antlerless/cow licenses can mask harvest rates of bulls when overall herd unit results are analyzed for success and effort. The number of antlerless/cow licenses being issued in the herd unit has increased over the past 15 years.

More recently, the number of total licenses offered and number of hunters has increased. The number of elk harvested and hunter effort (days/harvested elk) are dependent upon weather and access to elk herds. In 2012, more licenses were in the field but elk harvest declined and days/harvest increased. Weather was somewhat mild and hunters were active (high traffic) to allow elk to remain in canyons and other inaccessible areas.

Population. This population was monitored using trend surveys until 2008. Classification survey totals were often higher than trend totals, so trend surveys were discontinued. Additionally, flight budgets were reduced, so money for trend surveys have been diverted to classification surveys. Classification and trend survey totals suggest an increasing population since the early 1990s, except for a decline during extended drought (2000-04). Field personnel agree with those trends. The highest count occurred in 2009 with 3131 elk observed. Classification totals may not be accurate representation of the population since flight budgets have not increased at an equal rate with cost (per hour), resulting in decreased effort. Mild weather during early winter allows elk to remain dispersed across larger areas, so groups of elk were probably missed.

POP-II population models for this herd appeared to simulate observed data fairly well and the resulting population estimates followed expected trends. Those models produced a population estimate that was probably lower than actual. Thus, it was not surprising when the spreadsheet models estimated higher populations than POP-II. The spreadsheet model (time-specific juvenile, constant adult survival [TSJ,CA]) estimated 4600 elk, post-season 2012. The population trend produced by the model also suggested an increasing population over the past ten years and reflects opinions of field personnel.

Management Summary. Hunting seasons proposed for 2013 should result in a slight downturn or at least stabilizing of the population. Increased antlerless/cow licenses and longer seasons should enable more hunters to harvest female elk. This population objective will be reviewed and taken to the public in spring 2013. With the higher population estimate and high satisfaction of the hunters, we will propose increasing the population objective. Few landowners have complained about too many elk; usually only if elk concentrate on irrigated crops or pasture. Those elk will be targeted with antlerless/cow licenses. We will maintain harvest of females at current levels to ensure the population moves towards objective.

INPUT

Species:
Herd Unit & No.:
Model date:

Elk

Tom Easterly
Medicine Lodge

02/26/13

☒ Clear form

MODELS SUMMARY				Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	Fit	130	140	<input type="checkbox"/> CJ,CA Model	
SC,J,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	88		112	<input type="checkbox"/> SC,J,SCA Mod	
TS,J,CA	Time-Specific Juvenile & Constant Adult Survival	75		170	<input checked="" type="checkbox"/> TS,J,CA Model	
TS,J,CA,MSC	Time-Specific Juv, Constant Adult Survival, Male survival coefficient	69		181	<input type="checkbox"/> TS,J,CA,MSC Model	

Population Estimates from Top Model									
Year	Posthunt Population Est. Field Est	Trend Count	Predicted Prehunt Population		Predicted Posthunt Population		Total	Objective	
			Juveniles	Total	Juveniles	Total			
2000	1264		1264	5224	1158	350	2660	3000	
2001	939		706	4699	854	433	2439	3000	
2002	708		723	4120	600	474	2374	3000	
2003	872		674	4083	823	411	2158	3000	
2004	892		793	4191	818	496	2170	3000	
2005	1069		874	4458	1011	551	2249	3000	
2006	1016		1020	4721	962	662	2371	3000	
2007	870		1105	4756	827	721	2439	3000	
2008	1106		1002	4793	1049	710	2420	3000	
2009	1105		1063	4907	1020	667	2447	3000	
2010	1201		1011	4968	1130	665	2363	3000	
2011	1246		1189	5286	1170	830	2478	3000	
2012	1284		1223	5344	1250	904	2467	3000	
2013	1236		1368	5503	1144	954	2479	3000	
2014								3000	
2015								3000	
2016								3000	
2017								3000	
2018								3000	
2019								3000	
2020								3000	
2021								3000	
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2030								3000	
2031								3000	
2032								3000	

Survival and Initial Population Estimates

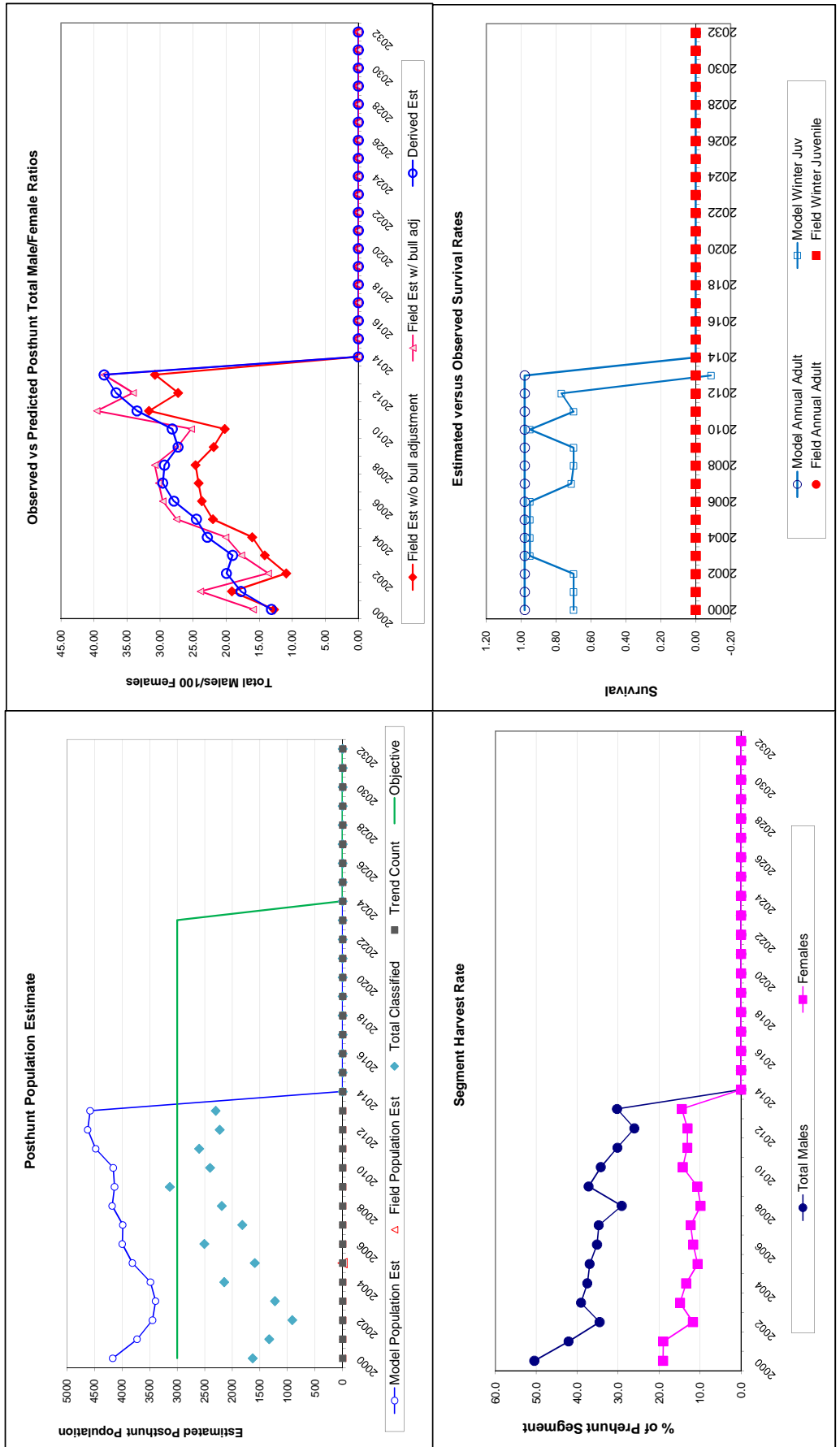
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
2000	0.70		0.98	
2001	0.70		0.98	
2002	0.70		0.98	
2003	0.95		0.98	
2004	0.95		0.98	
2005	0.95		0.98	
2006	0.95		0.98	
2007	0.71		0.98	
2008	0.70		0.98	
2009	0.70		0.98	
2010	0.95		0.98	
2011	0.70		0.98	
2012	0.77		0.98	
2013	-0.09		0.98	
2014				
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Parameters:		Optim cells
Adult Survival =		0.980
Initial Total Male Pop/10,000 =		0.035
Initial Female Pop/10,000 =		0.266

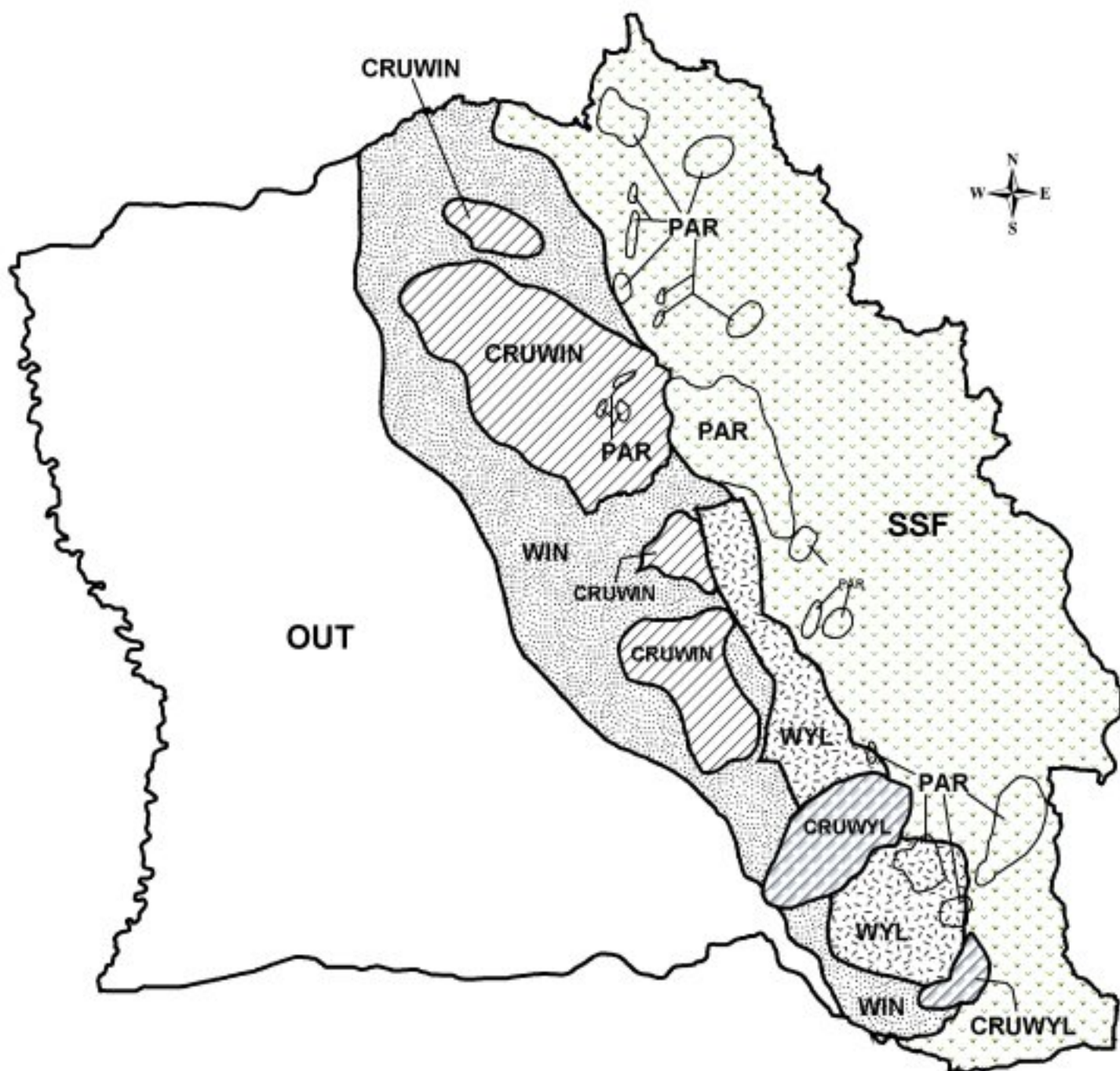
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	15%
Wounding Loss (females) =	20%
Wounding Loss (juveniles) =	15%
Total Bulls Adjustment Factor	80%

Year	Classification Counts										Harvest					Segment Harvest Rate (% of Prehunt Segment)	
	Juvenile/Female Ratio				Total Male/Female Ratio						Harvest						
	Derived Est	Field Est	Field SE	Derived Est	Field Est w/ bull adj		Field Est w/o bull adj		Field SE	Juv	Yrl males	2+ Males	Females	Total Harvest	Total Males	Females	
2000		43.53	2.45	13.16	15.94	12.75	12.75	1.17	92	61	249	517	919	50.5	19.1		
2001		34.99	2.34	17.75	23.90	19.12	19.12	1.62	74	36	238	477	825	42.1	19.0		
2002		25.26	2.17	19.95	13.64	10.91	10.91	1.35	94	37	180	263	574	34.5	11.7		
2003		38.14	2.56	19.03	17.70	14.16	14.16	1.42	43	69	160	315	587	39.1	14.9		
2004		37.71	1.93	22.84	20.07	16.06	16.06	1.16	64	78	181	280	603	37.5	13.4		
2005		44.97	2.61	24.51	27.52	22.01	22.01	1.68	50	69	212	222	553	37.0	10.6		
2006		40.59	1.93	27.91	29.59	23.67	23.67	1.39	47	28	284	261	620	35.2	11.7		
2007		33.91	1.99	29.58	30.22	24.17	24.17	1.62	37	41	293	285	656	34.7	12.3		
2008		43.36	2.18	29.34	30.79	24.64	24.64	1.54	49	20	234	221	524	29.1	9.9		
2009		41.69	1.76	27.28	27.36	21.89	21.89	1.18	74	51	293	243	661	37.2	10.6		
2010		47.83	2.22	28.15	25.26	20.21	20.21	1.30	62	49	252	327	690	34.2	14.2		
2011		47.21	2.19	33.49	39.57	31.66	31.66	1.69	66	54	258	312	690	30.2	13.1		
2012		50.68	2.47	36.65	34.07	27.26	27.26	1.67	29	14	263	309	615	26.1	13.1		
2013		46.15	2.28	38.46	38.46	30.77	30.77	1.76	80	60	300	350	790	30.3	14.5		
2014																	
2015																	
2016																	
2017																	
2018																	
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2031																	
2032																	

FIGURES



Comments:



Elk (E211) -- Medicine Lodge
 HA 41, 42, 45, 46
 Revised 10/1999

2012 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2012 - 5/31/2013

HERD: EL214 - GOOSEBERRY

HUNT AREAS: 62-64

PREPARED BY: BART KROGER

	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Trend Count:	2,768	3,144	2,800
Harvest:	556	710	830
Hunters:	1,032	1,303	1,600
Hunter Success:	54%	54%	52%
Active Licenses:	1,087	53%	1,700
Active License Percentage:	51%	53%	49%
Recreation Days:	6,389	8,244	10,000
Days Per Animal:	11.5	11.6	12.0
Males per 100 Females:	21	24	
Juveniles per 100 Females	25	37	

Trend Based Objective (\pm 20%)

2,000 (1600 - 2400)

Management Strategy:

Special

Percent population is above (+) or (-) objective:

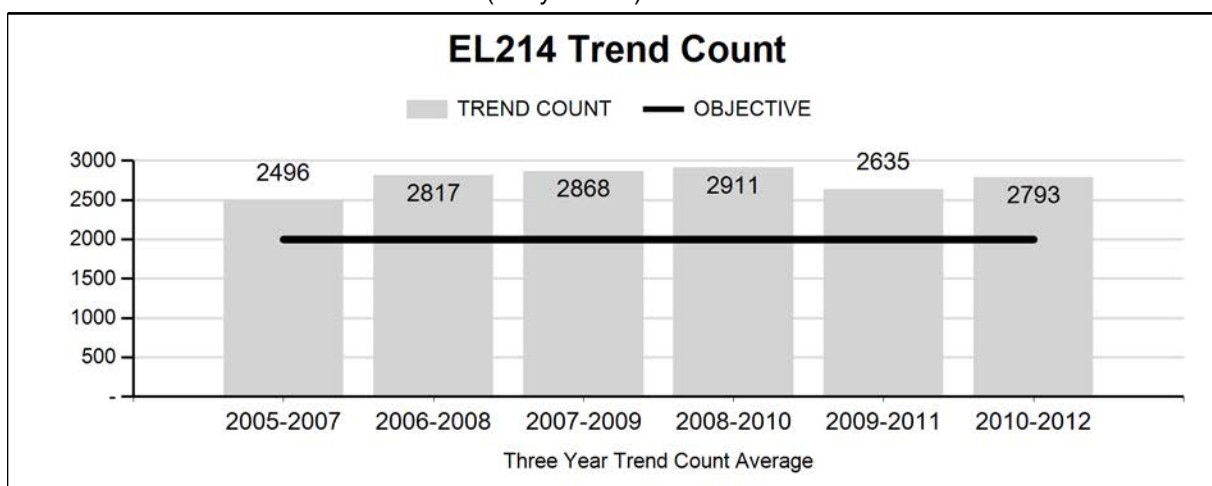
57%

Number of years population has been + or - objective in recent trend:

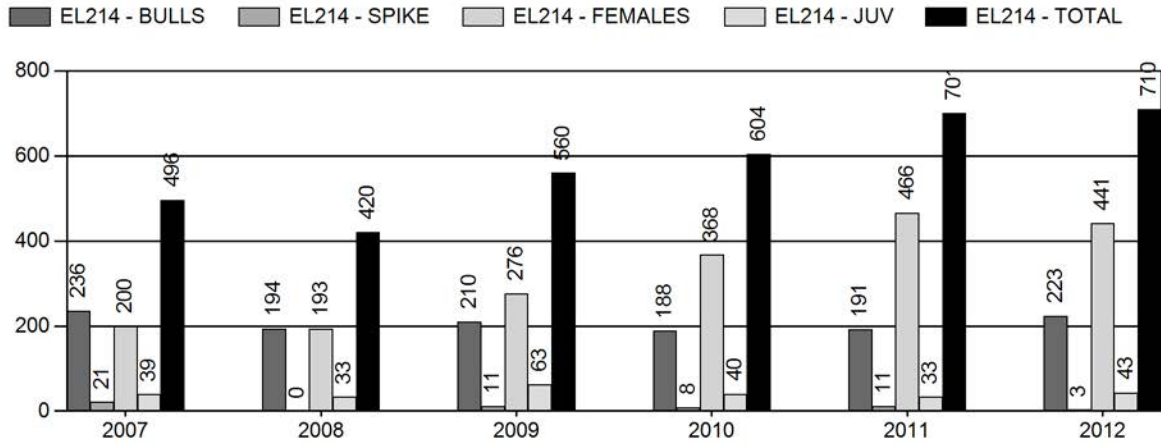
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Proposed harvest rates (percent of pre-season estimate for each sex/age group):

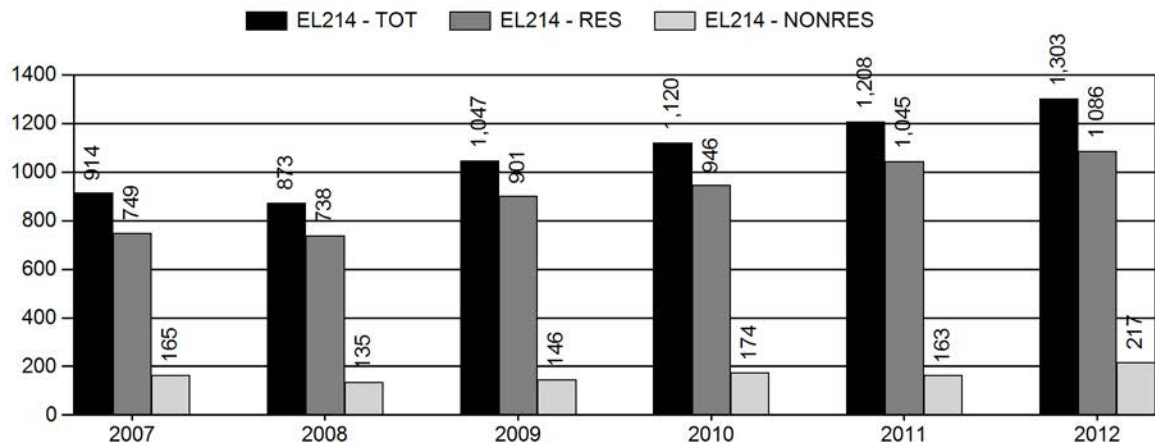
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	16%	23%
Males \geq 1 year old:	24%	26%
Juveniles (< 1 year old):	5%	7%



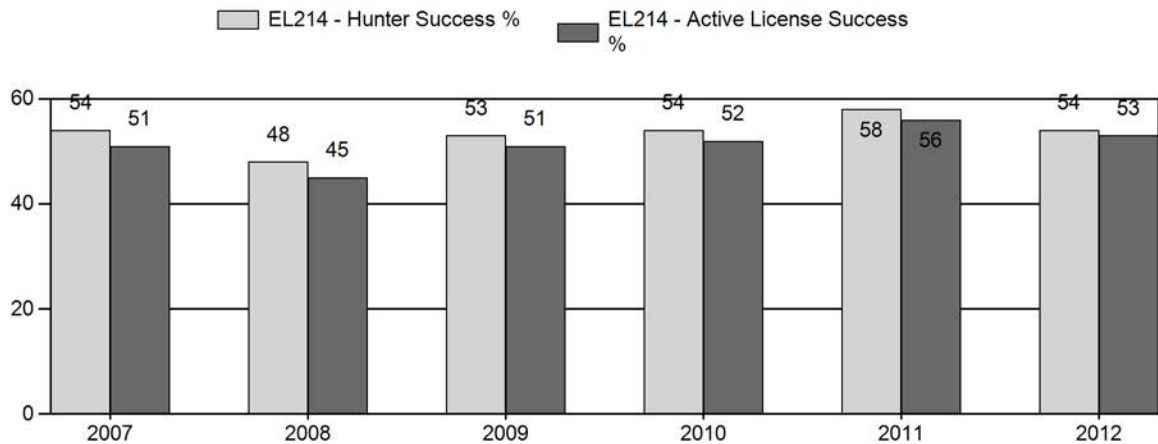
Harvest



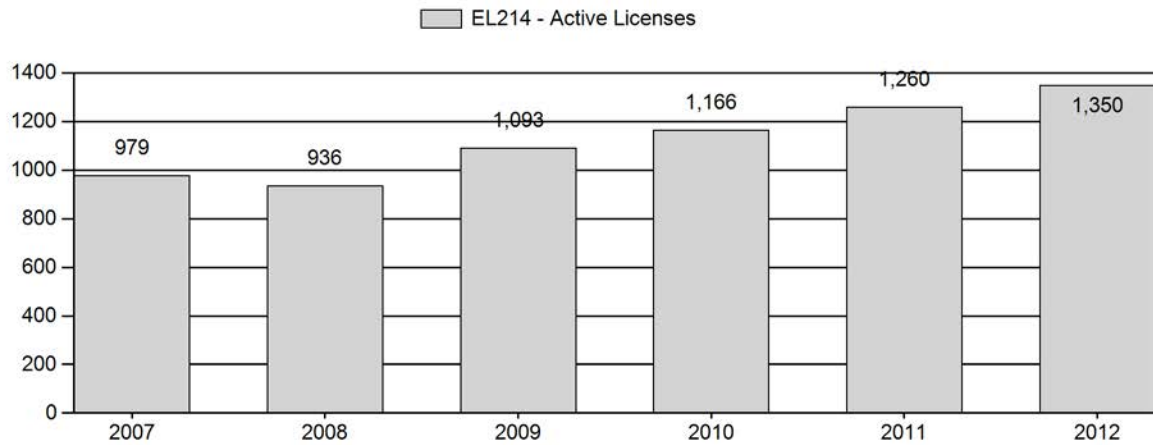
Number of Hunters



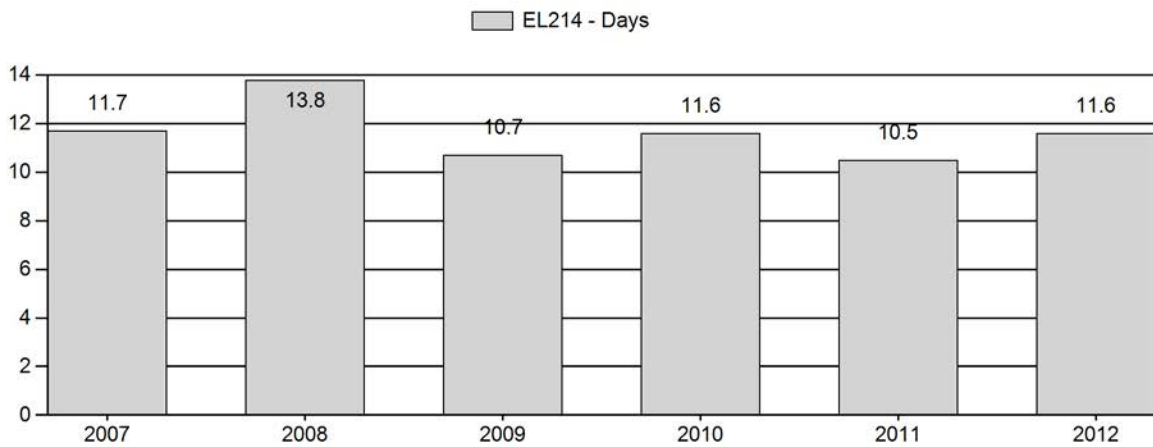
Harvest Success



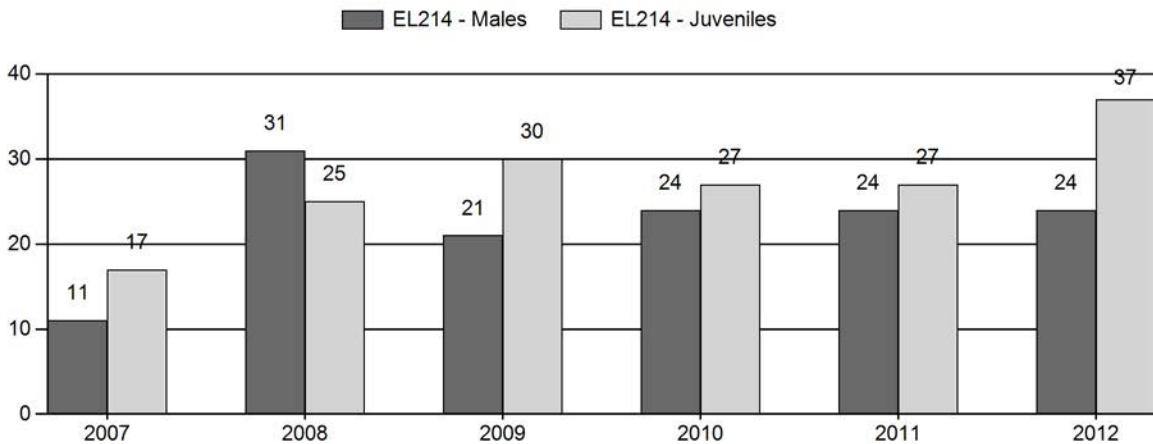
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2007 - 2012 Postseason Classification Summary

for Elk Herd EL214 - GOOSEBERRY

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	3,900	164	24	188	9%	1,725	78%	296	13%	2,209	161	10	1	11	± 1	17	± 1	15
2008	4,100	97	237	334	20%	1,072	64%	270	16%	1,676	377	9	22	31	± 2	25	± 2	19
2009	4,100	176	120	296	14%	1,404	66%	421	20%	2,121	357	13	9	21	± 1	30	± 1	25
2010	3,900	184	160	344	16%	1,461	67%	388	18%	2,193	315	13	11	24	± 1	27	± 1	21
2011	3,400	187	196	383	16%	1,611	66%	440	18%	2,434	309	12	12	24	± 1	27	± 1	22
2012	0	221	255	476	15%	1,944	62%	724	23%	3,144	468	11	13	24	± 0	37	± 0	30

**2013 HUNTING SEASONS
GOOSEBERRY ELK HERD (EL214)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
62	1	Oct. 1	Oct. 21	125	Limited quota; any elk
	4	Oct. 1	Oct. 21	75	Limited quota; antlerless elk
	5	Oct. 22	Dec. 22	200	Limited quota; antlerless elk, also valid in Area 63
		Dec. 1	Dec. 22		Unused Area 62 Type 1 and Type 4 licenses valid for antlerless elk, also valid in Area 63
63, 64	1	Oct. 1	Oct. 21	200	Limited quota; any elk
		Nov. 1	Dec. 22		Unused Area 63, 64 Type 1 licenses valid for antlerless elk
63	4	Oct. 1	Dec. 22	200	Limited quota; antlerless elk
	6	Aug. 15	Oct. 31	350	Limited quota; cow or calf valid off national forest in that portion of Area 63 north of Gooseberry Creek
		Nov. 1	Dec. 22		Unused Area 63 Type 6 licenses valid off national forest, also valid in Area 62
64	2	Nov. 1	Nov. 15	100	Limited quota; any elk
		Nov. 16	Dec. 22		Unused Area 64 Type 2 licenses valid for antlerless elk
	6	Nov. 1	Dec. 22	200	Limited quota; cow or calf valid in that portion of Area 64 south of and including the Cottonwood Creek drainage
	7	Aug. 15	Nov. 15	400	Limited quota; cow or calf valid in that portion of Area 64 within the Prospect Creek drainage; also valid within the Grass Creek drainage downstream of the Grass Creek/Little Grass Creek confluence
		Nov. 16	Dec. 22		Unused Area 64 Type 7 licenses valid in the entire area
Archery		Sep. 1	Sept. 30	Refer to Section 3	

Hunt Area	Type	Quota change from 2012
62	4	+25
	5	+25
63	4	+25
	6	+50
64	6	+50
	7	+150
Total	4&5	+75
	6&7	+250

Management Evaluation

Current Mid-Winter Trend Count Objective: 2,000

Management Strategy: Special

2012 Mid-Winter Count: 3,144

Most Recent 3-year Running Average Trend Count: 2,793

Herd Unit Issues. The 2012 mid-winter trend count was 3,144 elk, with a 3-year average of about 2,800. This population appears to have remained fairly stable the past 8 years, with only a slight upward trend in the late 2000's. This trend reflects field personnel and landowner perceptions of elk densities and trends, as well as when calf ratios began to increase. Hunter access to private lands, potential damage issues, brucellosis and large predator influences will continue to be major issues in managing this elk herd. The herd objective and management strategy were last revised in 2012. Efforts to develop and implement management ideas that result in more harvest and improved hunter success have and will continue to be major issue with this elk herd.

Weather. The winters of 2011-2012 and 2012-13 were mild with low snowpack resulting in good over winter survival. However, the dry spring and summer of 2012 appeared to influence elk distribution due to decreased forage production. Because of this, some damage issues on private land were reported. Overall, forage production was down considerably in this herd unit in 2012, both on summer and winter range.

Habitat. Numerous prescribed and wild fires have burned throughout this herd unit over the past 2 decades, particularly in area 62 and 63. These fires have certainly improved forage quality and quantity for the herd. However, with long-term drought conditions persisting, more elk are being forced to private irrigated crop fields. Two sagebrush transects were established in this herd unit in 2004 (Appendix C). Transect locations include Grass Creek and Wagonhound Bench. Sagebrush leader growth in 2012 for both the Grass Creek and Wagonhound transects was 2.0cm. This growth is down about 50% compared 2011, and down about 25% compared to the long-term average. Winter utilization is usually around 15%, but is shared with wintering pronghorn.

Field Data. Based on mid-winter trend counts, this elk herd increased from about 2400 elk to 2900 elk between the years 2005 and 2010. But since 2010, this trend has shown some declines, with an average of 2,600 and 2,800 elk in 2011 and 2012, respective. These trends are supported by improving calf ratios, which have steadily improved from 15:100 in 2005 to 37:100 in 2012. Harvest statistics further support these trends in elk numbers.

Harvest Data. Overall, total harvest of elk in this herd unit increased by 41% since 2007, with cow/calf harvest increasing by over 100%. For the most part, hunter success has remained stable with an average of about 54%, while hunter numbers have increased by 44% over the past few years. Hunter effort (11-12 days/harvest) has remained mostly stable despite increased hunter numbers. These harvest statistics, along with recent trends in calf ratios and winter counts, also reflect field personnel and landowner perceptions of elk densities and trends.

Currently, this herd unit supports three Hunter Management Areas (Pitchfork, Absaroka Front & Owl Creek HMA's), and one large Walk-in-Area. The Pitchfork and Absaroka Front HMA's have been in place for over 15 years, and continue to provide hunter access in areas 62, 63 and 64. The Owl Creek HMA was initiated in 2012, and has provided improved hunter access to upper Owl Creek in area 64. Starting in 2011, the Hunter Management Access Program (HMAP) was initiated along the Wood River in areas 62 and 63, which incorporated one very

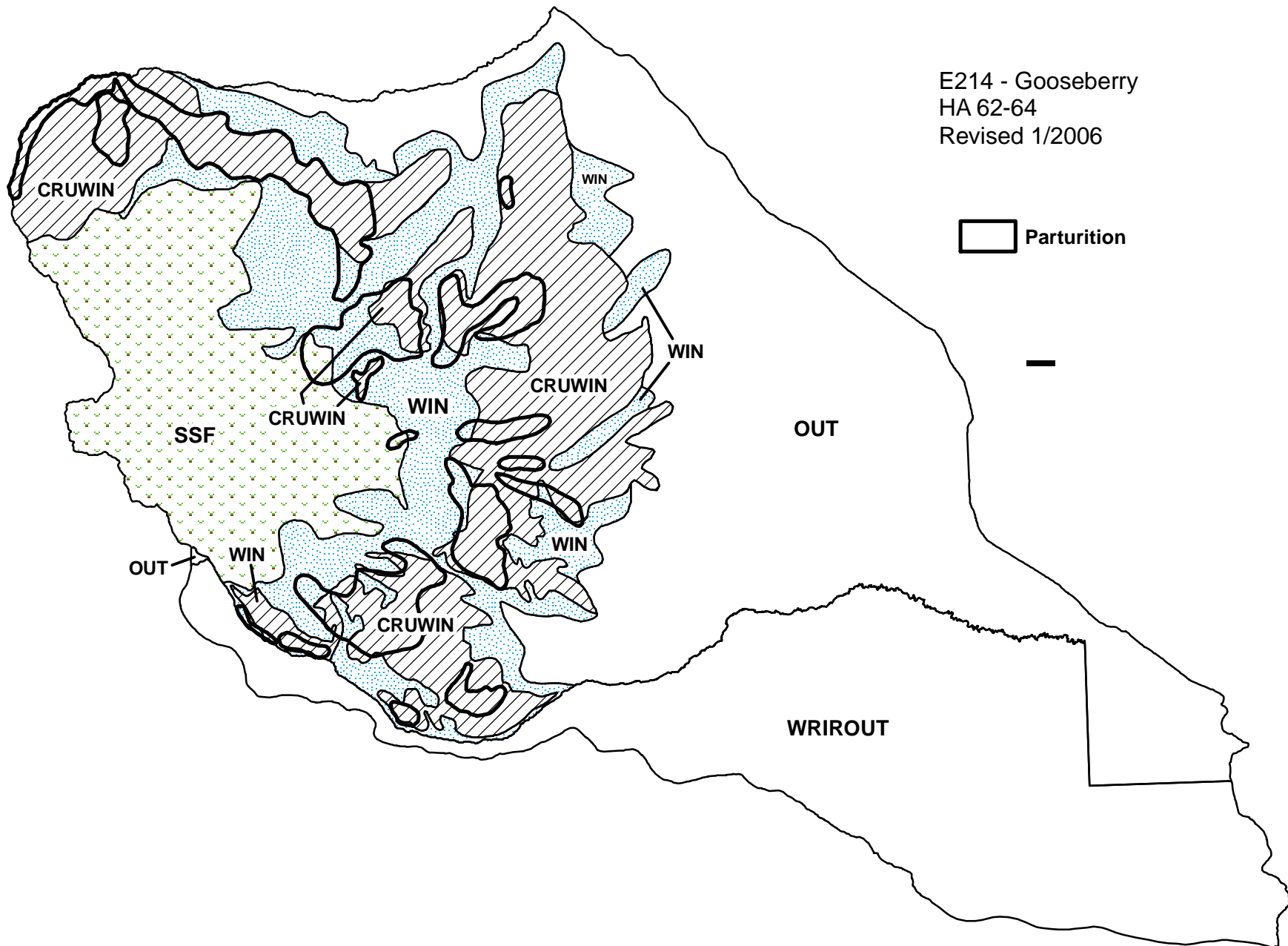
large ranch, along with BLM, State and the WGFD's Sunshine WHMA. Although the HMAP program helped provide for some additional harvest of elk, the effort and expense to implement the program was not very cost effective.

Hunting season structures, particularly antlerless and cow/calf seasons have become very liberal over the past 10 years. License quotas and season lengths have increased dramatically, with most antlerless and cow/calf hunting seasons being 3-4 months long. Because this herd is being managed under special management, hunters expect, and demand, high bull numbers and quality remain favorable. Therefore, Type 1 and 2 seasons are managed conservatively to maintain good bull quality and hunter satisfaction. The 2012 hunter satisfaction survey revealed over 80% of all hunters in this herd unit were either satisfied or very satisfied with the overall quality of their hunt.

Population. Current trends for this elk herd are hard to gauge, but appear to be mostly stable. Mid-winter trend counts have varied in recent years, from a high of 3,261 elk in 2008 to a low of 2,300 elk in 2005, but on average have been around 2,800 elk. For the most part, field personnel feel elk numbers are mostly stable, with variations in elk distribution caused by hunting pressure, reduced forage and to some extent influences by large predators.

Management Summary. For the 2013 season, Type 1 and 2 license quotas and season lengths will go unchanged. Currently, bull harvest and quality, along with hunter satisfaction remains favorable. There will be an increase of 325 antlerless and cow/calf licenses to further help increase harvest and drive this population toward objective levels. Season lengths will continue to run until late December in all hunt areas to allow for optimum hunter opportunity. A major change to the Type 7 season in area 64 will occur to help address potential private land damage concerns along Grass Creek. This season will focus hunters to areas where damage concerns on hay meadows and native rangeland. With a 2013 projected harvest of about 830 elk, we expect declines in this population to occur, which should help push this elk herd slowly toward objective.

E214 - Gooseberry
HA 62-64
Revised 1/2006



2012 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2012 - 5/31/2013

HERD: EL216 - CODY

HUNT AREAS: 55-56, 58-61, 66

PREPARED BY: DOUG MCWHIRTER

	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Trend Count:	5,712	4,204	4,400
Harvest:	1,271	1,711	1,800
Hunters:	2,607	3,095	3,100
Hunter Success:	49%	55%	58%
Active Licenses:	2,725	53%	3,300
Active License Percentage:	47%	53%	55%
Recreation Days:	16,647	19,363	20,000
Days Per Animal:	13.1	11.3	11.1
Males per 100 Females:	22	26	
Juveniles per 100 Females	30	32	

Trend Based Objective ($\pm 20\%$)

4,400 (3520 - 5280)

Management Strategy:

Special

Percent population is above (+) or (-) objective:

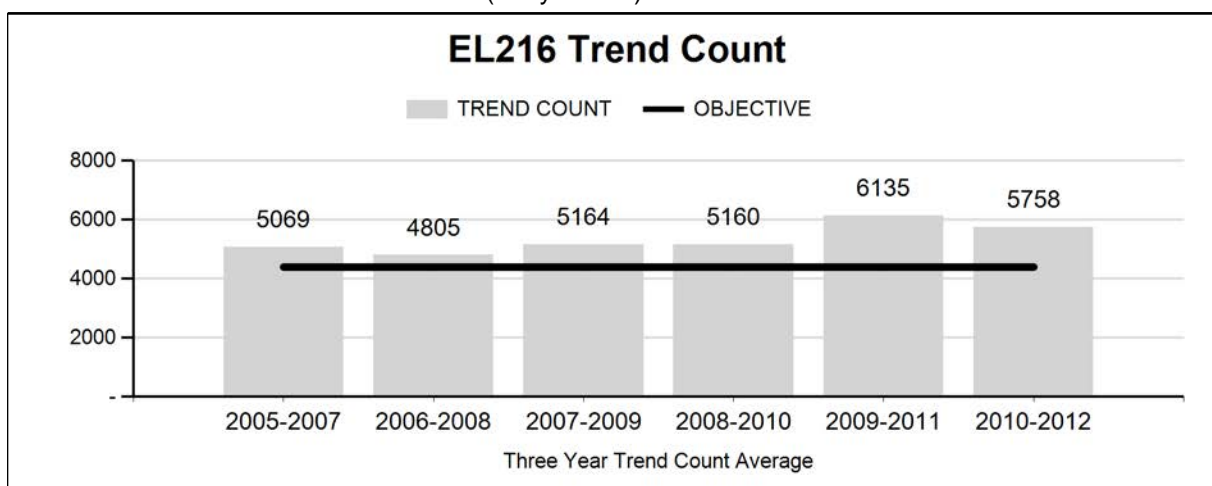
-4.5%

Number of years population has been + or - objective in recent trend:

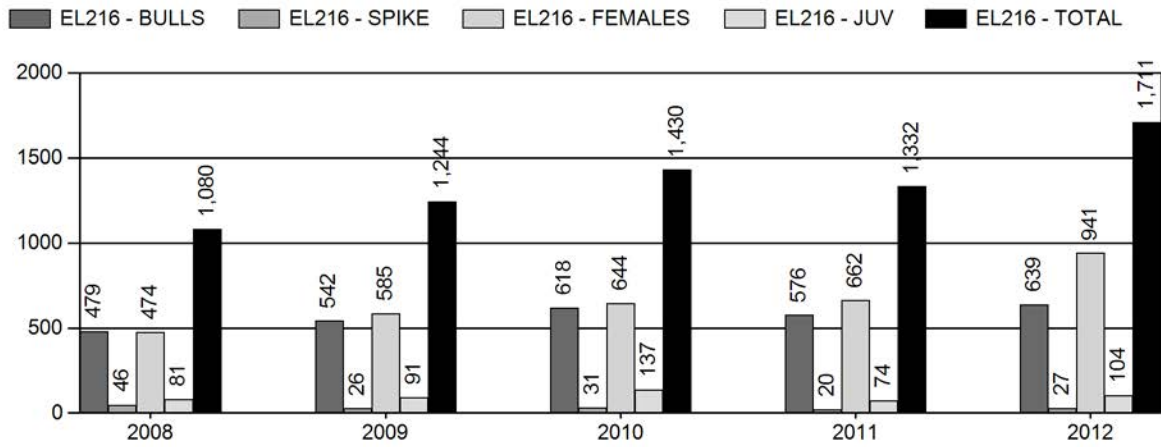
22

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

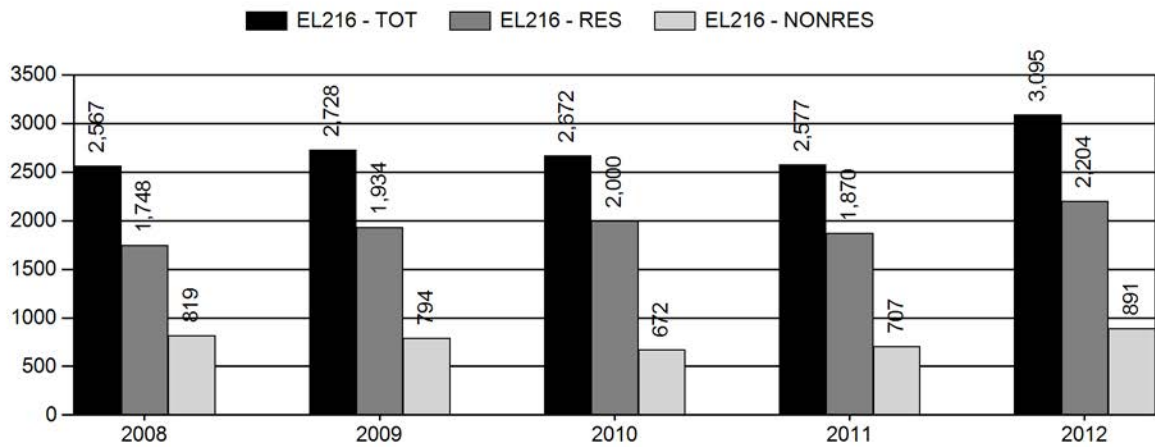
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	17.5%	N/A%
Males ≥ 1 year old:	31.0%	N/A%
Juveniles (< 1 year old):	4.8%	N/A%



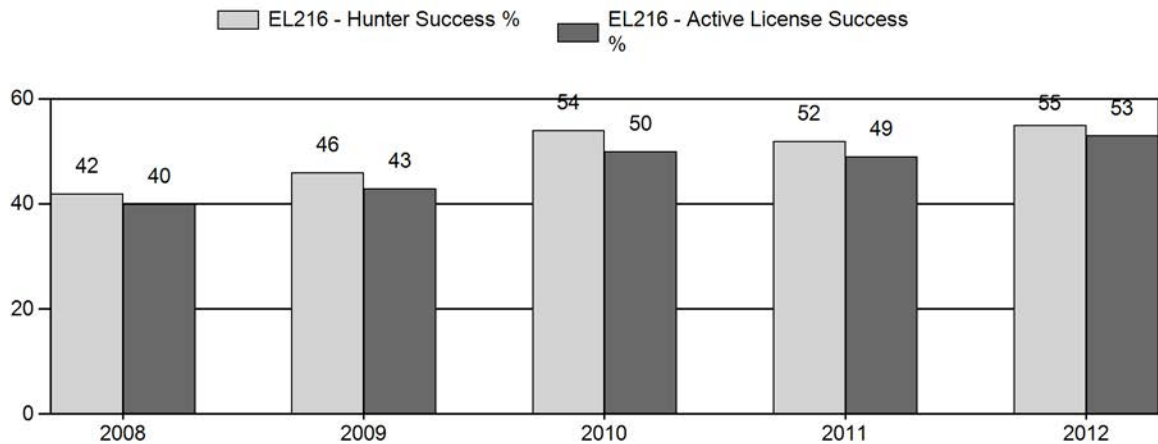
Harvest



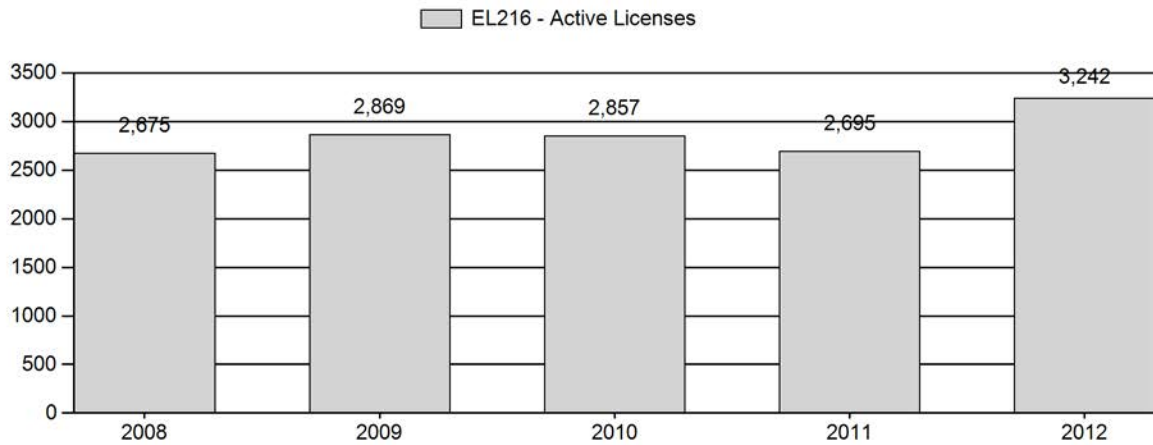
Number of Hunters



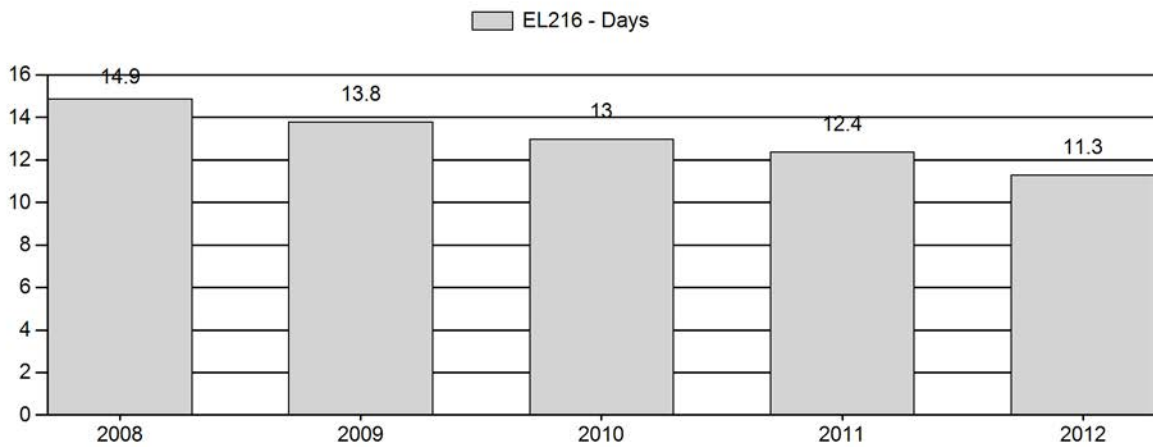
Harvest Success



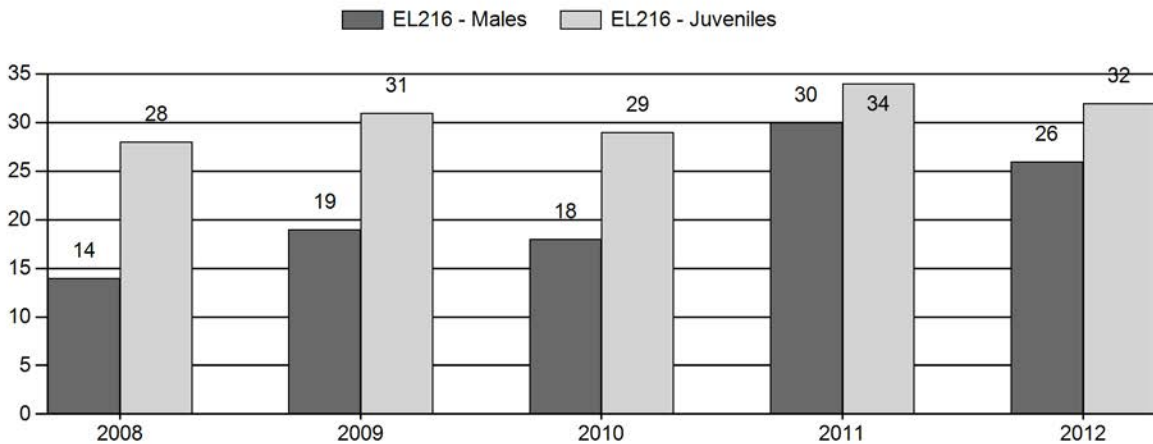
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2007 - 2012 Postseason Classification Summary

for Elk Herd EL216 - CODY

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	7,700	272	306	578	14%	2,891	69%	729	17%	4,198	288	9	11	20	± 1	25	± 1	21
2008	7,900	149	149	298	10%	2,069	70%	589	20%	2,956	285	7	7	14	± 1	28	± 1	25
2009	8,100	213	253	466	13%	2,400	66%	749	21%	3,615	284	9	11	19	± 1	31	± 1	26
2010	8,000	375	335	710	12%	3,878	68%	1,135	20%	5,723	372	10	9	18	± 1	29	± 1	25
2011	8,000	582	755	1,337	18%	4,490	61%	1,519	21%	7,346	370	13	17	30	± 0	34	± 0	26
2012	0	262	397	659	16%	2,561	63%	815	20%	4,035	388	10	16	26	± 0	32	± 0	25

**2013 HUNTING SEASONS
CODY ELK HERD (EL216)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
55	1	Oct. 1	Oct. 21	50	Limited quota; any elk, spikes excluded
	9	Sept. 1	Sept. 30	25	Limited quota; any elk, archery only, spikes excluded
56		Oct. 1	Oct. 14		General license; antlered elk, spikes excluded
		Oct. 15	Oct. 21		General license; antlered elk valid within the Washakie Wilderness and North Absaroka Wilderness, spikes excluded
	<u>1</u>	Dec. 1	Dec. 20	10	Limited quota; any elk
	4	Nov. 1	Nov. 15	50	Limited quota; 50 licenses antlerless elk valid in the South Fork of the Shoshone River drainage
		Nov. 16	Dec. 22		Unused Area 56 Type 4 licenses valid in the entire area
	5	Nov. 1	Dec. 22	100	Limited quota; antlerless elk valid off national forest
	6	Nov. 16	Dec. 22	100	Limited quota; cow or calf valid in the South Fork of the Shoshone River drainage
58	9	Sep. 1	Sep. 30	30	Limited quota; any elk, archery only, spikes excluded
	1	Oct. 1	Nov. 30	35	Limited quota; 35 licenses any elk
	4	Oct. 1	Dec. 22	150	Limited quota; antlerless elk
	6	Oct. 1 Jan. 4	Dec. 22 Jan. 12	250	Limited quota; cow or calf Unused Area 58 Type 4 and Type 6 licenses
59		Oct. 1	Oct. 14		General license; antlered any elk, spikes excluded
		Oct. 15	Oct. 21		General licenses; any elk within the Washakie Wilderness, spikes excluded
	1	Nov. 1	Nov. 15	10	Limited quota; any elk
	6	Nov. 1	Dec. 22	375	Limited quota; cow or calf

	7	Oct. 1	Oct. 31	25	Limited quota; cow or calf valid in the Boulder Creek drainage upstream from and including the Castle Creek drainage
	9	Sept. 1	Sept. 30	25	Limited quota; any elk, archery only, spikes excluded
60		Sep.20	Oct. 22		General license; any elk, spikes excluded
	9	Sept. 1	Sept. 30	20	Limited quota; any elk, archery only, spikes excluded
61	1	Oct. 1	Oct. 31	150	Limited quota; any elk valid within the Washakie Wilderness, also valid in that portion of Area 62 within the Washakie Wilderness south of Avalanche Creek
		Nov. 1	Dec. 22		Unused Area 61 Type 1 licenses valid for antlerless elk in the entire area
	2	Oct. 15	Nov. 15	50	Limited quota; any elk
	4	Oct. 15	Dec. 22	100	Limited quota; antlerless elk
	6	Sept. 1	Nov. 14	1,000	Limited quota; cow or calf valid north of and including the Rawhide Creek drainage
		Nov. 1	Nov. 14		Limited quota; cow or calf Unused Area 61 Type 6 licenses also valid within the Washakie Wilderness
		Nov. 15	Dec. 22		Unused Area 61 Type 6 licenses valid in the entire area, also valid in Area 66 and that portion of Area 58 within the Dry Creek drainage
		Jan. 5 4	Jan. 12		Unused Area 61 Type 6 licenses
66	6	Sept. 1	Dec. 22		General license; any elk
		Sept. 1	Dec. 22	150	Limited quota; cow or calf
		Jan. 4	Dec. 22		Unused Area 66 Type 6 licenses
		Sept. 1	Sept. 30		Refer to Section 3 of this Chapter
Archery 55, 58, 61		Sept. 1	Sept. 30		General license; any elk, spikes excluded, limited quota license refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
55	1	+50
55	9	+5
56	1	+10
59	4	-125
59	6	+125
59	7	+25
61	4	+50
66	6	+50
Total	1	+60
	4	-75
	6	+175
	7	+25
	9	+5

Management Evaluation

Current Mid-Winter Trend Count Objective: 4,400

Management Strategy: Special

2012 Mid-Winter Trend Count Objective: ~5,758

2013 Proposed Mid-Winter Trend Count Objective: ~4,400

Herd Unit Issues. Most of the Cody Herd Unit is characterized by migratory elk, but substantial numbers of non-migratory elk are found in all areas. Calf productivity varies across this herd unit, but not as dramatically as that seen in the Clarks Fork Herd Unit. Damage situations do exist where overabundant elk overlap with private lands. Elk in areas with good productivity that reside at least seasonally on mixed ownership require liberal management, while those herd segments with poor productivity requires conservative management. Season structure was primarily developed through the efforts of a citizen working group during 2011-2012 to address some public concern with bull elk numbers in some hunt areas.

Weather. Weather conditions during the 2012 biological year were characterized by below normal spring-summer moisture, and mild winter conditions, with little snowfall and few extended periods of extremely cold temperatures. Precipitation levels at higher elevation sites were closer to normal.

Habitat. One herbaceous vegetation transect is monitored on Carter Mountain. Herbaceous production in 2011 at this site on the southeast face of Carter Mountain was below an 8-year average. Herbaceous utilization at this site during the 2011/2012 winter was slightly higher than average at 50%.

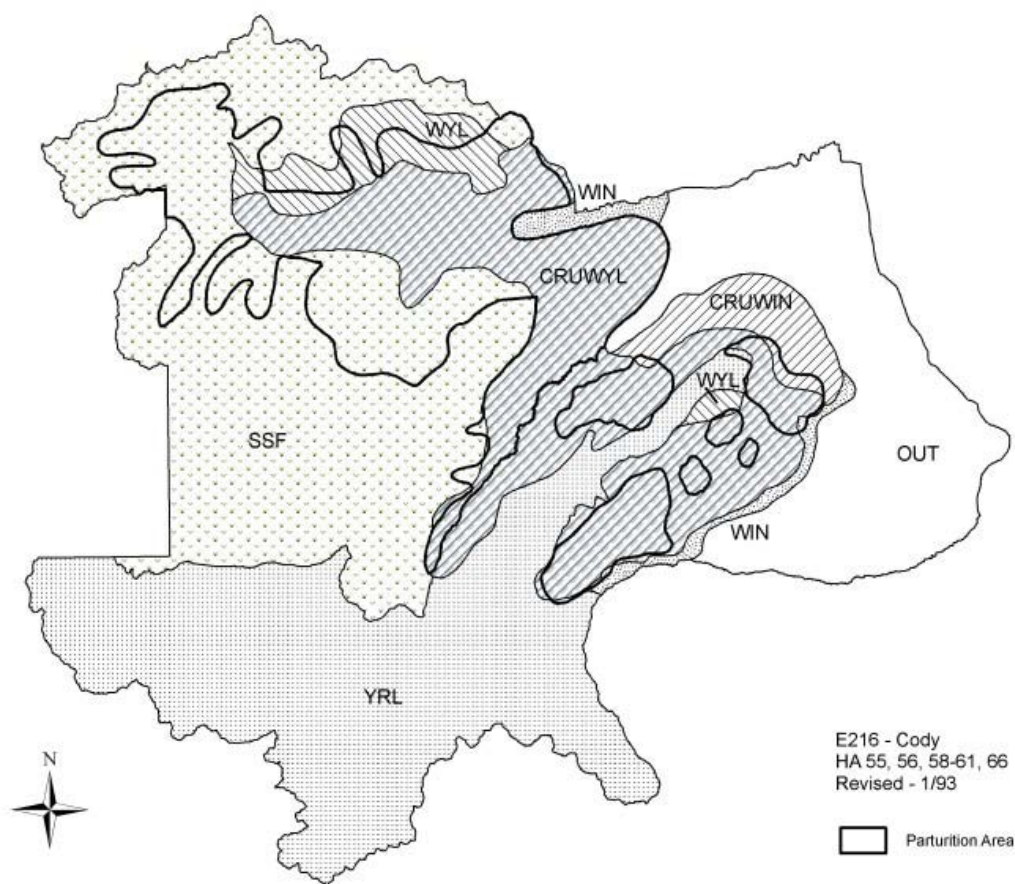
Below normal precipitation apparently did not impact calf recruitment, as calf:cow ratios increased slightly, even in the migratory portion of this herd unit. Perhaps the mild winter conditions the proceeding winter allowed cows to come through winter in adequate condition, and movement to mountainous summer ranges (where precipitation was near normal) provided access to better quality forage.

Field Data. Classification surveys in 2012 yielded a calf:cow ratio of 32:100 (range 19:100 – 54:100), while the most recent 10-year (1993-2012) average calf:cow ratio is 26.9 calves:100 cows (range 15:100 – 40:100). The 2012 surveys produced a yearling bull:cow ratio of 10:100 (range 2:100 – 17:100), while the average yearling bull ratio is 9.5 yearling bulls:100 cows over the 1993-2012 period (range 5:100 - 16:100).

Harvest. Bull harvest in 2012 was the 7th highest in the last 30 years, while the antlerless elk harvest was second only to that obtained in 1998.

Population. Because past efforts to create reliable population simulation models have not proved successful, in 2012 the Cody Elk Herd Unit switched to a Mid-Winter Trend Count population objective. Trend count objectives are based on 3-year running averages on a hunt area, and multiple hunt area basis. The Trend Count Objective for Hunt Areas 55 & 56 is 1,150 elk, while the actual trend count average in this area is 1,111. Management efforts will be directed at maintaining elk numbers at this level. The Trend Count Objective for Hunt Areas 58 & 59 is also 1,150 elk, while the actual average trend count is 1,375 elk. Management direction for this area is to continue to reduce elk numbers. The Trend Count Objective for Hunt Area 61 is 2,100 elk, while the actual average trend count is 3,178 elk.

Management Summary. Management direction for this area is to continue to significantly reduce elk numbers. Hunt Area 66 has no Trend Count Objective and management efforts here are to minimize elk numbers as low as possible. In total, the Trend Count Objective for the entire Cody Elk Herd Unit is 4,400 elk, while the actual average trend count is 5,758. Management efforts will continue to reduce elk numbers to meet this objective, with emphasis on Area 61, and to a lesser degree hunt areas 58 and 59.



2012 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2012 - 5/31/2013

HERD: EL217 - CLARKS FORK

HUNT AREAS: 50-54, 65, 121

PREPARED BY: DOUG
MCWHIRTER

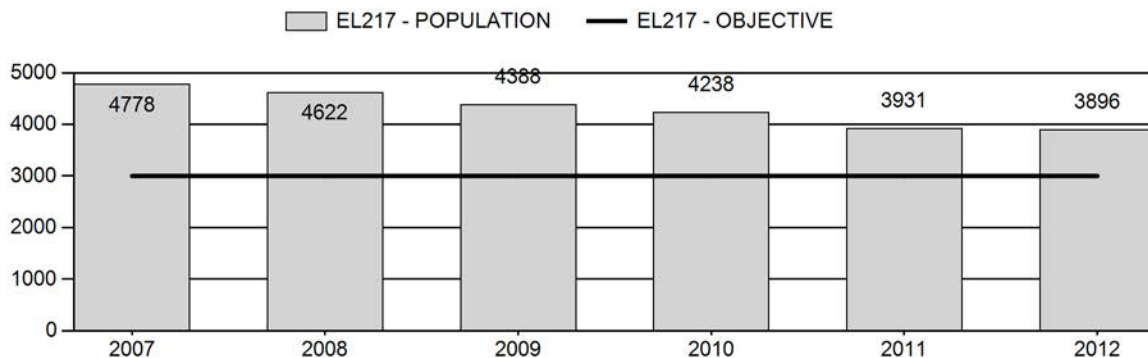
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	4,391	3,896	3,700
Harvest:	601	376	475
Hunters:	1,419	1,013	1,100
Hunter Success:	42%	37%	43%
Active Licenses:	1,493	1,091	1,200
Active License Percent:	40%	34%	40%
Recreation Days:	10,395	9,154	9,500
Days Per Animal:	17.3	24.3	20
Males per 100 Females	17	21	
Juveniles per 100 Females	24	23	

Population Objective:	3,000
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	30%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/26/2013

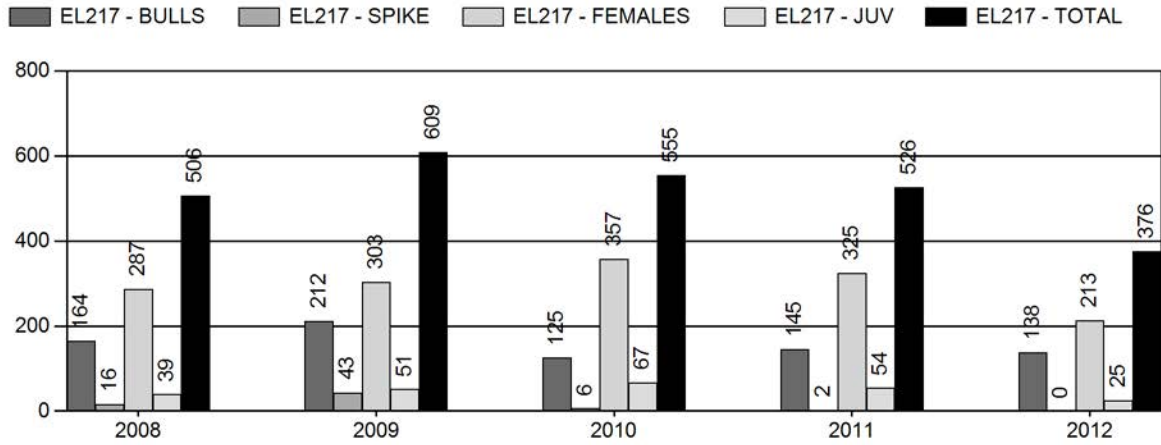
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	11.2%	12.2%
Males \geq 1 year old:	8.4%	19.0%
Juveniles (< 1 year old):	7.9%	1.0%
Total:	9.91%	11.38%
Proposed change in post-season population:	-2.8%	-6.4%

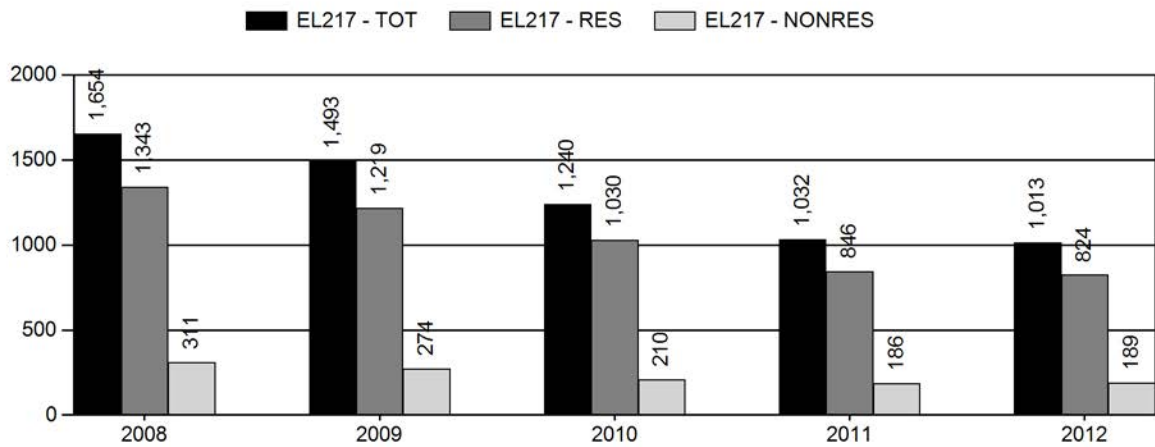
Population Size - Postseason



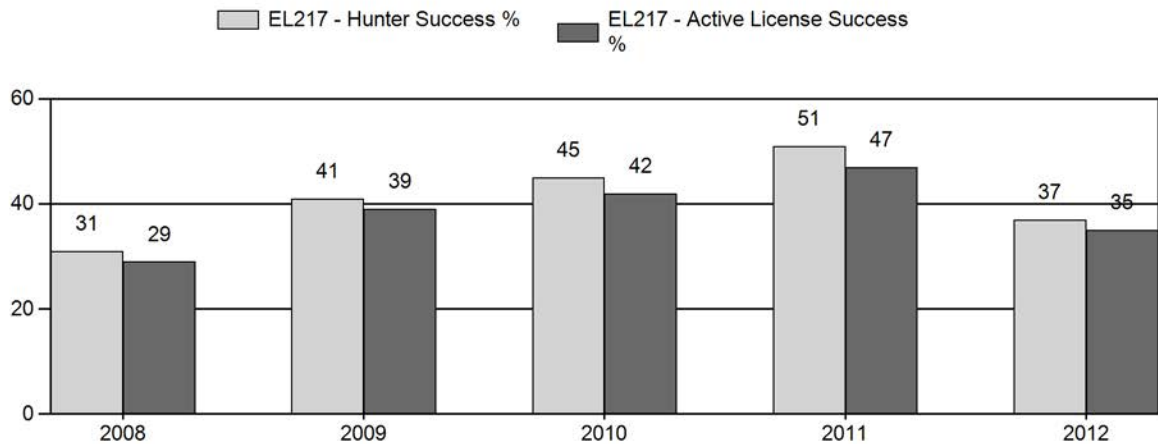
Harvest



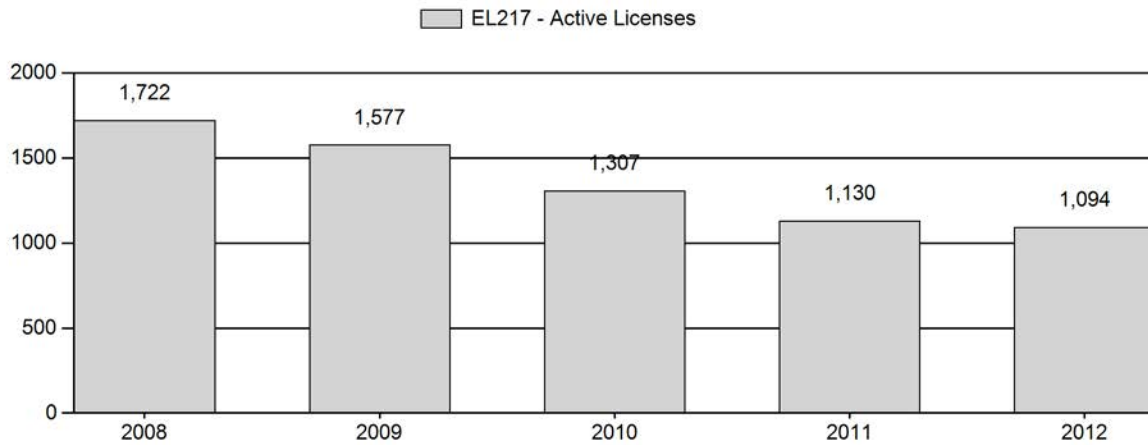
Number of Hunters



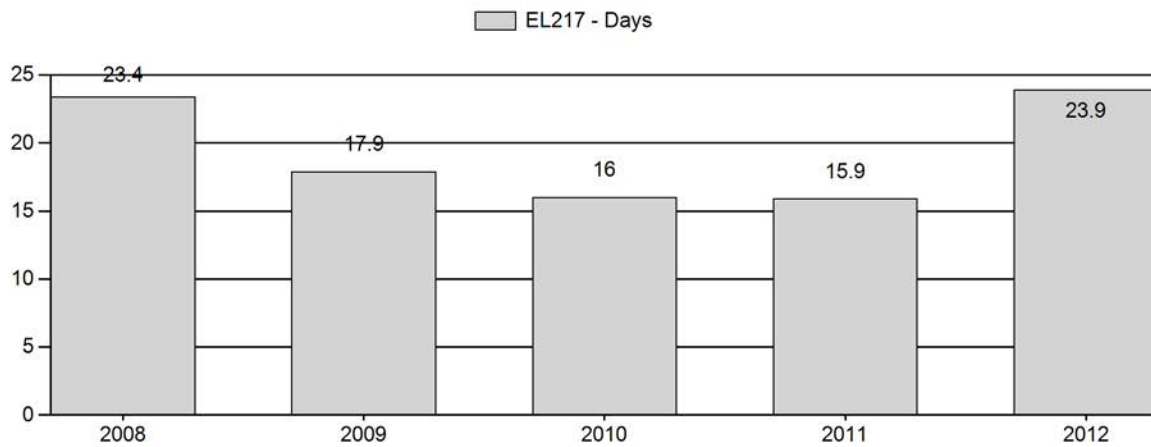
Harvest Success



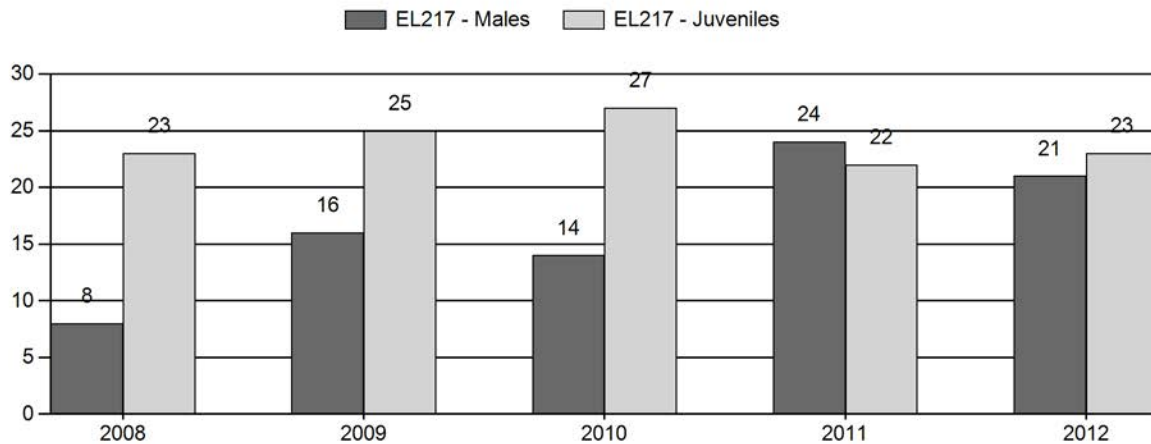
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2007 - 2012 Postseason Classification Summary

for Elk Herd EL217 - CLARKS FORK

Year	Post Pop	MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	YIng	Adult	Total	Int	100 Fem	Conf Int	100 Adult
2007	5,300	261	425	686	16%	2,910	68%	665	16%	4,261	266	9	15	24	± 1	23	± 1	18
2008	5,400	139	68	207	6%	2,695	76%	621	18%	3,523	283	5	3	8	± 0	23	± 1	21
2009	5,500	205	224	429	11%	2,738	71%	673	18%	3,840	283	7	8	16	± 1	25	± 1	21
2010	5,500	153	97	250	10%	1,782	71%	476	19%	2,508	369	9	5	14	± 1	27	± 1	23
2011	5,000	204	376	580	17%	2,379	68%	524	15%	3,483	283	9	16	24	± 1	22	± 1	18
2012	3,900	127	355	482	14%	2,331	69%	541	16%	3,354	287	5	15	21	± 0	23	± 1	19

**2013 HUNTING SEASONS
CLARKS FORK ELK HERD (EL217)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
50	1	Oct. 1	Oct. 31	20	Limited quota; any elk
	4	Nov. 16	Dec. 15	75	Limited quota; antlerless elk
	9	Sept. 1	Sept. 30	20	Limited quota; any elk, archery only
51	1	Oct. 1	Oct. 31	100	Limited quota; any elk
	9	Sept. 1	Sept. 30	50	Limited quota; any elk, archery only
51, 52, 53	4	Nov. 16 Nov. 22	Nov. 21 Dec. 15	100	Limited quota; antlerless elk Unused Area 51, 52, 53 Type 4 licenses valid in Area 52 and Area 53
52, 53	1	Oct. 1	Oct. 31	40	Limited quota; any elk
	9	Sept. 1	Sept. 30	30	Limited quota; any elk, archery only
54, 65	1	Oct. 1	Nov. 30	50	Limited quota; any elk
	4	Sept. 1	Sept. 30	50	Limited quota; antlerless elk
	5	Oct. 1	Oct. 31	50	Limited quota; antlerless elk
	6	Nov. 1	Nov. 30	200	Limited quota; cow or calf elk
	7	Dec. 1	Dec. 31	200	Limited quota; cow or calf elk
	9	Aug. 15	Sept. 30	25	Limited quota; any elk; archery only
121	1	Nov. 1	Nov. 30	100	Limited quota; any elk
	4	Oct. 1	Oct. 31	50	Limited quota; antlerless elk
	5	Nov. 1	Dec. 31	50	Limited quota; antlerless elk
	6	Nov. 1	Dec. 31	200	Limited quota; cow or calf elk
Archery 54, 65, 121		Sept. 1	Sept. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
50	4	+35
121	4	+25
	5	-75
	6	+75
Total	4	+60
	5	-75
	6	+75

Management Evaluation

Current Postseason Population Management Objective: 3,000

Management Strategy: Special

2012 Postseason Population Estimate: ~3,900

2013 Proposed Postseason Population Estimate: ~3,700

Herd Unit Issues. Much of the Clarks Fork Herd Unit is characterized by migratory elk (Hunt Areas 50-53), but substantial numbers of non-migratory elk are found in Areas 50, 54, 65, and 121. Migratory elk exhibit poor productivity, while non-migratory elk have much higher productivity. Consequently, damage situations arise with non-migratory elk in Areas 50, 54, 65, and 121 and require liberal management, while poor productivity requires conservative management of migratory elk.

Weather. Weather conditions during the 2012 biological year were characterized by below normal spring-summer moisture, and mild winter conditions, with little snowfall and few extended periods of extremely cold temperatures. Precipitation levels at higher elevation sites were closer to normal.

Habitat. Herbaceous vegetation transects are monitored on upland vegetation types in Sunlight Basin, both on the Sunlight Wildlife Habitat Management Area (WHMA) and on adjacent U.S. Forest Service lands. Herbaceous production during 2011 in Sunlight Basin and on Bald Ridge was generally below average the most recent 8-year average. Herbaceous utilization at these sites during the 2011-2012 winter was variable, with Bald Ridge receiving very little use and Sunlight Basin receiving more or less average use. Use levels continue to be very high in Sunlight Basin, with utilization exceeding 80% at three of 5 sites.

Below normal precipitation apparently did not impact calf recruitment, as calf:cow ratios increased slightly, even in the migratory portion of this herd unit. Perhaps the mild winter conditions the proceeding winter allowed cows to come through winter in adequate condition, and movement to mountainous summer ranges (where precipitation was near normal) provided access to better quality forage. The additional influence of calf predation, especially in the migratory segment of this herd unit, complicates the ability to disentangle habitat and predation effects.

Field Data. Classifications in 2012 yielded a calf:cow ratios of 16:100 for migratory elk and 39:100 for non-migratory elk. The most recent 10-year (1993-2012) average calf:cow ratio of migratory elk is 14.0 calves:100 cows (range 11:100 – 16:100), while the average calf:cow ratio of non-migratory elk is 34.3 calves:100 cows (range 26:100 – 43:100). Yearling bull:cow ratios in 2012 were 5:100 for migratory elk, and 7:100 for non-migratory elk. The most recent 10-year (1993-2012) average yearling bull:cow ratios were 4.2 yearling bulls:100 cows for migratory elk (range 3:100 - 6:100), while non-migratory elk averaged 11.2 yearling bulls:100 cows (range 7:100 – 14:100); hence the need for conservative management of migratory elk and liberal management of non-migratory elk.

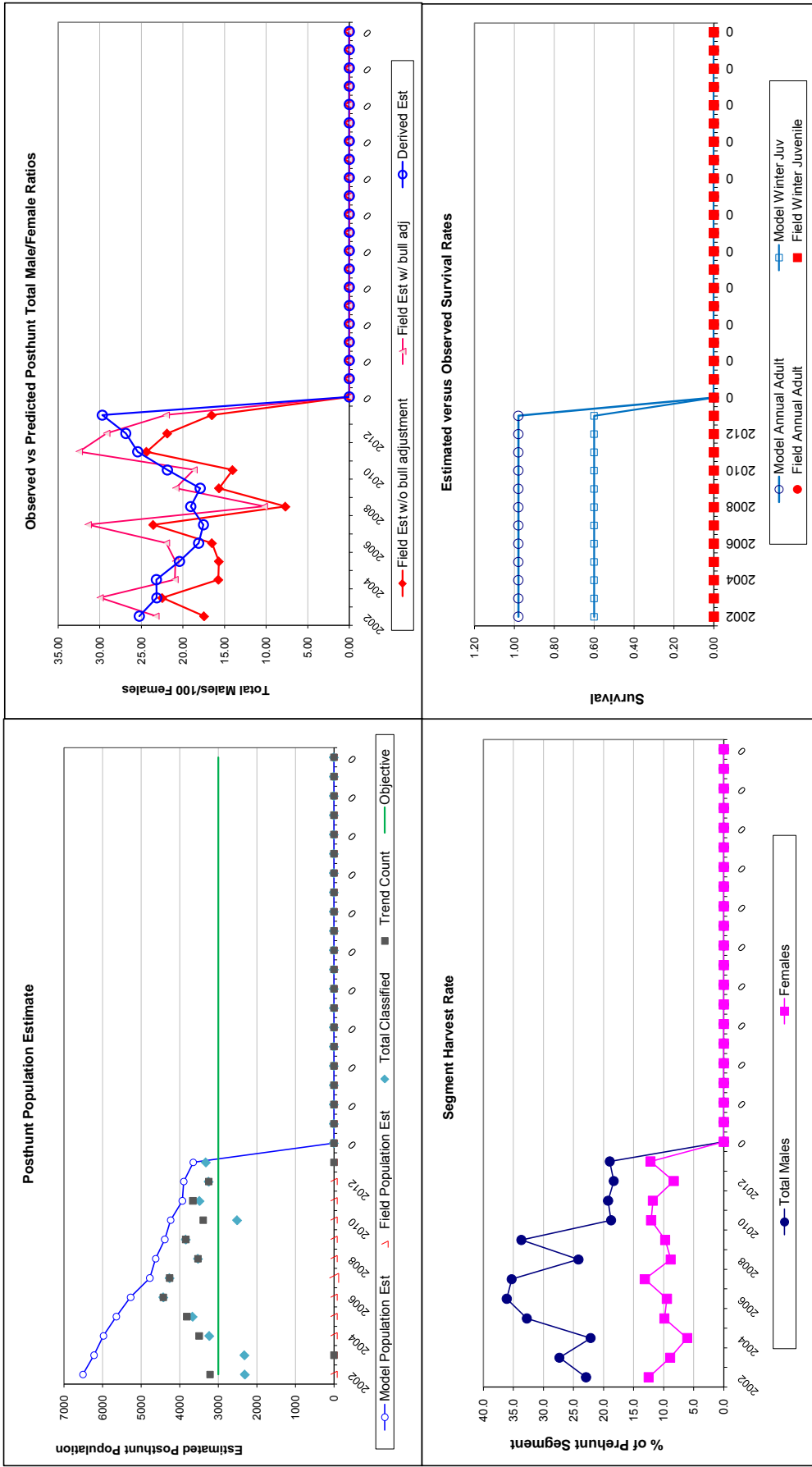
Harvest Data. Bull harvest was among the lowest recorded in this herd unit, but is largely due to intentional reductions in the harvest of migratory bull elk (through conversion to limited quota hunting) and poor success in

other areas. Harvest of antlerless elk dropped in almost all areas in this herd unit in 2012, but especially in Area 54 and 65, even though aggressive efforts to harvest antlerless elk continued. The antlerless harvest obtained in 2012 was the lowest since 1987.

Population. Although the “Constant Juvenile – Constant Adult Mortality Rate” (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd because the population estimate appears to be the most reasonable, this is not considered to be an accurate estimate of population size or trend. The postseason population estimate for 2012 is 3,900 elk, or 30% above the population objective. This situation is to be remedied when the objective for this herd unit is reviewed in the near future. It is likely that a mid-winter trend count objective will be established for the Clarks Fork Herd Unit, similar to that done for the Cody Herd Unit.

Management Summary. We will continue with the current management structure for migratory elk (which consists of conservative bull seasons, with little antlerless harvest), while continuing to target non-migratory elk in with abundant and lengthy antlerless licenses. The 2013 seasons should result in post-season 2013 population near 3,700 elk.

FIGURES



Comments:

